

Notice of Allowability

Application No.

10/767,559

Examiner

Nguyen T Ha

Applicant(s)

LIST ET AL.

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01/28/2004.
2. ☒ The allowed claim(s) is/are 1-26.
3. ☒ The drawings filed on 28 January 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

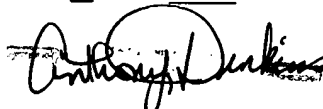
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 0104 & 0604
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


ANTHONY DINKINS
PRIMARY EXAMINER

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 18, line 1, please change "a" to - - an - -.

Allowable Subject Matter

2. Claims 1-26 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to claims 1-6, the prior art alone or in combination does not teach the limitation of an apparatus comprising: a planarized metal interconnect line coupled to a bottom electrode of an electrically decoupling capacitor wherein a top electrode of the electrically decoupling capacitor is coupled to a flip chip bump contact such that the capacitor being disposed between and aligned between at least a portion of the metal interconnect line and the bump contact.

With respect to claims 7-12, the prior art alone or in combination does not teach the limitation of an apparatus comprising: a bump contact coupled to a decoupling capacitor and second top metal voltage bias line such that the capacitor is disposed between and aligned between at least a portion of the first top metal voltage bias line

and the bump contact, the second top metal voltage bias line having a different purpose than the first top metal voltage bias line coupled to the capacitor.

With respect to claims 18-21, the prior art alone or in combination does not teach the limitation of an apparatus comprising: a bump contact contacting a top electrode material such that the top electrode material being disposed between and aligned between at least a portion of the layer of metal and the bump contact.

With respect to claims 22-26, the prior art alone or in combination does not teach the limitation of an apparatus comprising: a bump contact contacting a capacitor stack through a removed portion of a passivation layer over a top of the capacitor stack such that the capacitor stack being disposed between and aligned between at least a portion of the layer of metal and the bump contact, the bump contact also contacting a second metal power bias voltage line.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Citation Relevant of Prior Art

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Chen et al. (US 6,812,088) disclose a method for making a new metal insulator metal (MIM) capacitor structure in copper-CMOS circuits using a pad protect layer.

- b. Coolbaugh et al. (US 6,800,921) disclose a method of fabricating a polysilicon capacitor utilizing FET and bipolar base polysilicon layers.
- c. Farooq et al. (US 6,791,133) disclose interposer capacitor built on silicon wafer and joined to a ceramic substrate.
- d. Basceri et al. (US 6,727,140) disclose capacitor with high dielectric constant materials and method of making.
- e. Cheng et al. (US 6,627,968) disclose integrated capacitor and fuse.
- f. Yang et al. (US 6,423,554) disclose semiconductor device having a capacitor and method for the manufacture thereof.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T Ha whose telephone number is 571-272-1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.

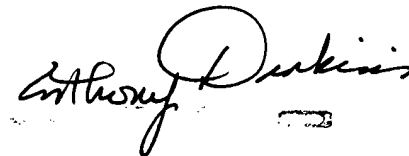
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2831

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nguyen T. Ha
December 15, 2004

A handwritten signature in black ink, reading "Anthony Dinkins". The signature is written in a cursive style with a large, prominent loop for the letter 'D'.

ANTHONY DINKINS
PRIMARY EXAMINER